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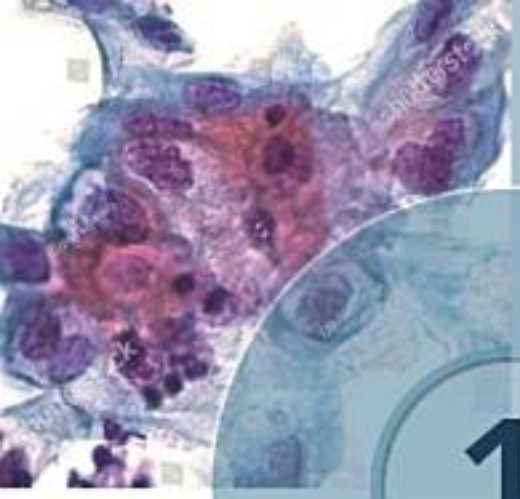

1 Obstetric history and examination

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Learning Objectives

- Understand the concept of preconceptual counselling and the opportunity that it provides.
- Understand the principles of taking an obstetric history.
- Understand the key components of an obstetric examination.
- Be able to perform an appropriate obstetric examination.

INTRODUCTION

Taking an obstetric history and performing an obstetric examination differs from a history and examination in other specialities in that the patient is often healthy and simply undergoing a normal life event. Antenatal care is designed to support the normal physiological process and to detect early signs of complications. For patients with a more complicated history, a detailed history and risk assessment offers a personalised approach with the opportunity to plan antenatal care carefully. The types of questions asked during the history change with gestation, as does the purpose and nature of the examination, and questioning and examination must always be undertaken with care and sensitivity.

PRECONCEPTUAL COUNSELLING

Pregnancy is increasingly being achieved in those of an advanced age, who frequently have one or more pre-existing medical conditions. As more patients with chronic illness look to conceive, who often have high levels of insight into their conditions, obstetricians are increasingly having the opportunity to meet with patients prior to conception to discuss their medical conditions and provide advice on optimizing their pregnancy and maximizing their chances of a healthy uncomplicated pregnancy. This often occurs via a preconceptual clinic.

The main purposes of preconceptual counselling are as follows:

- optimize maternal health before embarking on a pregnancy
  - recognise issues
  - amend lifestyle
  - address social issues
- reduce maternal and perinatal morbidity and mortality
- address chronic medical conditions
- address medications used (are they pregnancy friendly?)
- discuss the impact of the disease process on pregnancy versus the impact of pregnancy on the disease process

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- address challenges to falling pregnant – fertility issues
- plan antenatal follow-up and any screening needed for when pregnancy occurs
- discuss mode of delivery
- address breastfeeding – which medications are suitable
- plan postnatal follow-up and contraception

OBSTETRIC HISTORY

INTRODUCTION

When meeting a patient for the first time, introduce yourself and tell the patient why you have come to see them. Make sure that the patient is seated comfortably. Some patients may want another person to be present and this wish should be respected. A qualified interpreter (or interpreting service) should be used if appropriate.

The questions asked must be tailored to the purpose of the visit. At the booking visit, the history must be thorough and meticulously recorded. Once this baseline information is established, there is no need to go over this information at every visit. Everyone should attend for routine antenatal visits, usually performed by the midwife, and occasionally some attend for a specific reason or because a complication has developed.

Some areas of the obstetric history cover subjects that are intensely private. It is vital to maintain confidentiality and to be aware of and be sensitive to each individual situation.

DATING THE PREGNANCY

Pregnancy was historically dated from the last menstrual period (LMP), because the LMP was considered more reliable than the date of conception. The median duration from the first day of the LMP to birth is 40 weeks, and this can be used to work out the estimated date of delivery (EDD). This explains why, although a human pregnancy is approximately 38 weeks, we refer to the length of pregnancy as 40 weeks in duration. However, the National Institute for Health and Care Excellence (NICE) guideline on antenatal care recommends that pregnancy dates are set by ultrasound using the crown–rump measurement between 11 weeks and 2 days and 14 weeks and 1 day. Almost everyone undergoing antenatal care in the UK will have an ultrasound scan late in the first trimester or early in the second trimester, and the EDD is determined at this point. Accurate dating early in pregnancy is important for assessing fetal growth in later pregnancy and reduces the risk of premature planned deliveries, such as induction of labour for postmature pregnancies (>41 weeks' gestation) and elective caesarean sections.

Figure 1.1 Gestation calendar wheel.

In the first trimester, there are pregnancy calculators (wheels) (**Figure 1.1**) available and pregnancy calculator apps for smartphones that can work out the EDD for you (**Figure 1.2**), which are useful before the dating scan.

Figure 1.2 Gestation calendar app on a smartphone. (Courtesy of Dr Andrew Yu, Yale University.)

SOCIAL HISTORY

The social history is an important part of the obstetric history, as social circumstances can have a dramatic influence on pregnancy outcome, and requires considerable sensitivity. Mothers and Babies, Reducing Risk through Audits and Confidential Enquiries across the UK (MBRRACE-UK) has consistently reported that maternal mortality is highest among those who are older and those living in the most deprived areas. Recent reports highlighted that a quarter of those who died, whose birthplace was known, were born outside the UK and almost 1 in 10 had severe and multiple disadvantages including substance misuse, domestic abuse and mental health issues. Of those that died, 20% were known to social services and to child protection services.

Women from Black, Asian and minority ethnic groups have a much higher chance of dying during pregnancy or after birth and, although they have more health problems and are more affected by social and economic problems, systemic racism and racial bias may also affect their care. This is extremely important to remember when taking a history at any point in pregnancy, as there is evidence from Black, Asian and minority ethnic groups that they are treated differently, receive less empathy from health professionals, are not listened to, are not taken seriously and are less likely to disclose worries (**Figure 1.3**).

Women who are experiencing domestic abuse are at higher risk of abuse during pregnancy and of adverse pregnancy outcomes; because they may be prevented from attending antenatal appointments, they may be concerned that disclosure of their abuse may worsen their situation and they may be anxious about the reaction of health professionals. One-third of those who experience domestic abuse do so for the first time while pregnant, and pregnancy and the post-partum period is a risk factor for domestic abuse leading to homicide, with one in seven maternal deaths occurring in those who have told their health professional they are in an abusive relationship. This is why it is important to ask about domestic abuse in every pregnancy.

Enquiring about domestic abuse is difficult. It is recommended that everyone who is pregnant is seen on their own at least once during their pregnancy, so that they can discuss this, if needed, away from an abusive partner. If you happen to be the person with whom this information is shared, you must ensure that it is passed on to the relevant team, as this may be the only opportunity that the patient has to disclose it. It is a good idea to practise with your peers asking about domestic abuse sensitively, demonstrating empathy and compassion and signposting to support.

Smoking, alcohol and drug intake also form part of the social history. Smoking causes placental dysfunction and thus increases the risk of miscarriage,

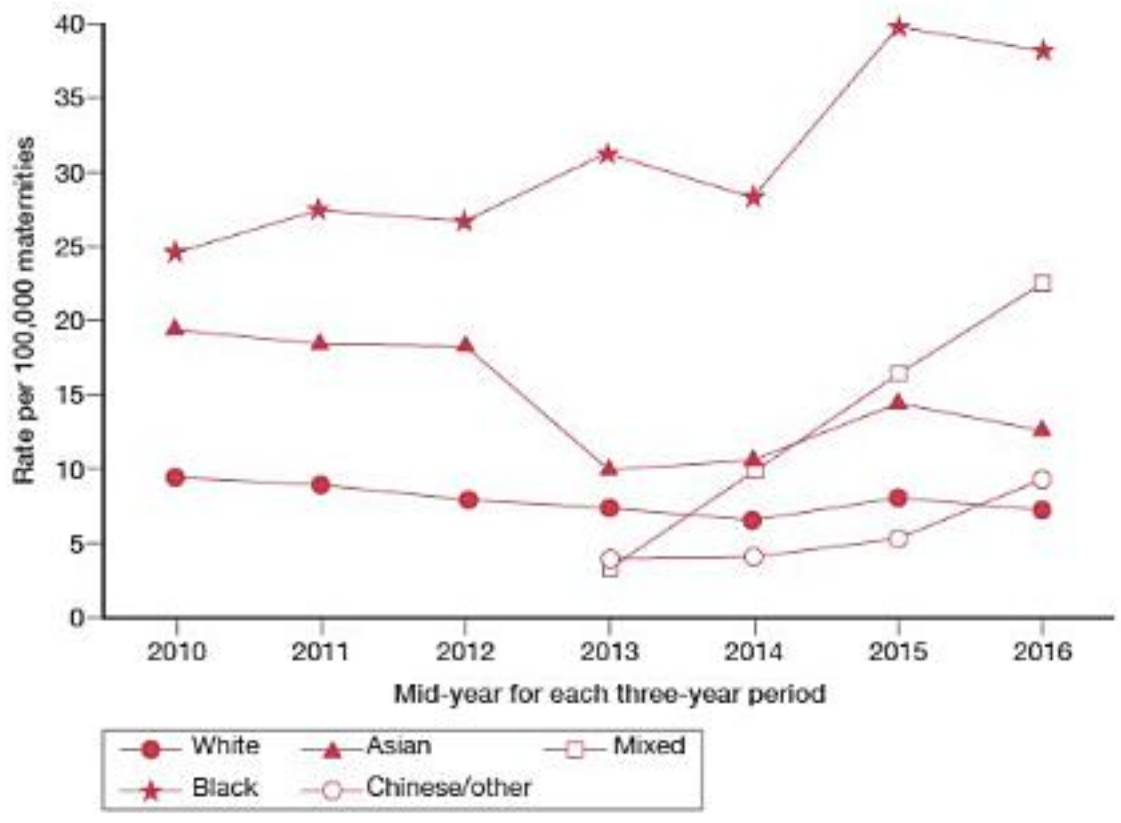

Figure 1.3 Maternal mortality rates from 2009 to 2017 among people from different ethnic groups in the UK.

stillbirth and neonatal death. There are interventions that can be offered to those who are still smoking in pregnancy (see **Chapters 3** and **6**).

Complete abstinence from alcohol is advised, as the safety of alcohol is not proven. However, alcohol is probably not harmful in small amounts (less than one drink per day). Binge drinking is particularly harmful and can lead to a constellation of features in the baby known as fetal alcohol syndrome (see **Chapters 3** and **6**).

Enquiring about recreational drug taking is more difficult. Approximately 0.5–1% of women continue to take recreational drugs during pregnancy. Be careful not to make assumptions. During the booking visit, the midwife should enquire directly about drug taking. If it is seen as part of the long list of routine questions asked at this visit, it is perceived as less threatening. However, sometimes this information comes to light at other times. Cocaine and crack cocaine are the most harmful of the recreational drugs taken, but all have some effects on the pregnancy, and all have financial implications (see **Chapter 6**).

The following are important aspects of the social history:

- whether the patient is single or in a relationship and what support they have at home
- what sort of housing the patient lives in (e.g. a flat with lots of stairs and no lift may be problematic)
- whether the patient works and, if so, for how long they are planning to work during the pregnancy
- whether the patient smokes/drinks or uses recreational drugs

PREVIOUS OBSTETRIC HISTORY

Past obstetric history is one of the most important areas for establishing risk in the current pregnancy. It is helpful to list the pregnancies in date order and to discover what the outcome was in each pregnancy.

The features that are likely to have impact on future pregnancies include:

- preterm delivery (increased risk of preterm birth)
- pre-eclampsia (increased risk of pre-eclampsia/fetal growth restriction)
- abruption (increased risk of recurrence)
- congenital abnormality (recurrence risk depends on type of abnormality)
- macrosomic baby (may be related to gestational diabetes)
- fetal growth restriction (increased recurrence)
- unexplained stillbirth (increased risk of gestational diabetes)

The method of delivery for any previous births must be recorded, as this can have implications for planning in the current pregnancy, particularly if there has been a previous caesarean section, difficult vaginal birth, postpartum haemorrhage or significant perineal trauma.

The shorthand for describing the number of previous pregnancies can be confusing:

- *gravidity* is the total number of pregnancies, regardless of how they ended
- *parity* is the number of live births or stillbirths, after 24 weeks. Note that miscarriages are denoted as a + (see below) and twins count as 2

Therefore, someone who has had six miscarriages with only one live baby born at 32 weeks and is pregnant again will be gravida 8, para 1 + 6.

In practice, when presenting a history, it is much easier to describe exactly what has happened; for example, 'JA is in their eighth pregnancy. They have had six miscarriages at gestations of 8–12 weeks and one spontaneous delivery of a live baby boy at 32 weeks. Baby Tom is now 2 years old and healthy.'

PAST GYNAECOLOGICAL HISTORY

EARLY PREGNANCY

In the first trimester, taking a detailed gynaecological history is important, particularly if scanning is not available and the LMP is being used to date the pregnancy. People with polycystic ovary syndrome can have very long menstrual cycles and may have ovulated much later in the cycle. Contraceptive history can also be relevant if conception has occurred soon after stopping the combined oral contraceptive pill or depot progesterone preparations, as, again, this makes dating by LMP more difficult. Also, some people will conceive with an intrauterine device still in situ. This carries an increased risk of miscarriage.

Previous episodes of pelvic inflammatory disease increase the risk of ectopic pregnancy. This is only of relevance in early pregnancy. However, it is important to establish that any infections have been adequately treated and that the partner was also treated. Chlamydia infection is common in teenagers and can cause problems if the baby if untreated.

Previous ectopic pregnancy increases the risk of recurrence from 1 in 100 pregnancies to 18 in 100. Those who have had an ectopic pregnancy should be offered an early ultrasound scan to establish the site of any future pregnancies.

RISK FACTORS FOR LATER PREGNANCY

The date of the last cervical smear should be noted. Every year, a small number of people are diagnosed as having cervical cancer in pregnancy. It is important that smears are not deferred in anyone at increased risk of cervical disease (e.g. previous cervical smear abnormality or very overdue smear). Gently taking a smear in the first trimester does not cause miscarriage and expectant parents should be reassured about this. If there has been irregular bleeding, the cervix should at least be examined to ensure that there are no obvious lesions present.

If someone has undergone treatment for cervical changes, this should be noted. Treatment to the cervix by knife cone biopsy or large loop excision of the transformation zone (LLETZ) can be associated with an increased risk of preterm birth, and depending on the depth of biopsy, measuring the cervical length in the second trimester may be recommended.

Recurrent miscarriage may be associated with a number of problems. Antiphospholipid syndrome increases the risk of further pregnancy loss, fetal growth restriction, pre-eclampsia and venous thromboembolism and patients need a great deal of support during pregnancy if they have experienced recurrent pregnancy losses.

Termination of pregnancy is a sensitive subject and, as first trimester terminations of pregnancy are not usually relevant to the pregnancy, information about such terminations must be sensitively requested and recorded. Some people do not wish this to be recorded in their hand-held notes. However, second-trimester terminations and terminations for congenital abnormalities may be relevant, and a sensitive way to ask is 'Have you had any other pregnancies?' allowing for disclosure of previous pregnancies.

Previous gynaecological surgery should be asked about, especially if it involved the uterus, and the presence of pelvic masses such as ovarian cysts and fibroids should also be noted, as both of these issues may also pose problems during pregnancy and may have an impact on delivery. A history of endometriosis is also important to be aware of, because of the adhesions and scarring associated with that disease, which can make a caesarean section complicated.

Having a history of subfertility and fertility treatment may increase anxiety about pregnancy and birth and therefore should be noted if the couple wish. However, legally, you should only write down in notes that a pregnancy is conceived by in vitro fertilization (IVF) or donor egg or sperm if you have written permission from the parent. Generally, if the patient has told you themselves that the pregnancy was an assisted conception, it is reasonable to state that in your presentation.

MEDICAL AND SURGICAL HISTORY

All pre-existing medical disease should be carefully noted and any associated drug history also recorded. The major pre-existing diseases that have an impact on pregnancy and their potential effects are covered in **Chapter 10**.

Previous surgery should be noted. Occasionally, surgery has been performed for conditions that may continue to be a problem during pregnancy and at delivery, such as Crohn disease.

A history of mental health illness is important to record. These enquiries should be made in a sensitive way at the antenatal booking visit and should include the severity of the illness and whether they received consultant care. If someone has had children before, it is important to ask whether they had problems with depression or 'the blues' after the births of any of them. People with significant mental illness in pregnancy should be cared for by a multidisciplinary perinatal mental health team, including the midwife, general practitioner, hospital consultant and psychiatric team.

BOX 1.1: Major pre-existing diseases that have an impact on pregnancy

- Diabetes mellitus
- Hypertension
- Cardiac disease
- Epilepsy
- Renal disease
- Connective tissue diseases (e.g. systemic lupus erythematosus)
- Venous thromboembolic disease: increased risk during pregnancy
- Human immunodeficiency virus (HIV) infection

DRUG HISTORY

It is vital to establish what drugs have been taken, for which condition and for what duration during pregnancy. This includes over-the-counter medication and homeopathic/herbal remedies.

Pre-pregnancy counselling is advised for those with significant medical conditions and those who are taking potentially harmful drugs. In some cases, medication needs to be changed before pregnancy, if that is possible (e.g. anyone taking sodium valproate for epilepsy should be seen by a neurologist and counselled about changing to an alternative). Some people also need to know that they must continue their medication if they find out they are pregnant; for example, people with epilepsy often reduce or stop their medication for fear of potential fetal effects, with detriment to their own health. There are many instances in which there needs to be a discussion as to the pros and cons of taking medication in pregnancy; for example, someone with significant mental illness may be advised to continue medication, whereas someone with milder mental health issues may choose to stop medication pre-pregnancy after careful counselling.

The most important aspect here is that, once you have ascertained the drug history, you should give advice about the medication only if you have the knowledge and expertise to do so. The British National Formulary (BNF) does not give enough information to allow people to make an informed choice about the medication they take, but there are national organizations and websites that have much more information

Table 1.1 Organizations that offer advice on medicines during pregnancy and when breastfeeding

Type of information	Organization(s)
Evidence-based safety information about medication, vaccines, and chemical and radiological exposures in pregnancy	UK Teratology Information Service (UKTIS): https://uktis.org/ Best Use of Medicines in Pregnancy (BUMPS): https://www.medicinesinpregnancy.org/
Information about drugs/products and breastfeeding	UK Drugs in Lactation Advisory Service: http://www.midlandsmedicines.nhs.uk/content.asp?section=6&subsection=17&pageIdx=1

or are happy to be contacted for queries about medication in pregnancy and when breastfeeding. No one must ever be told to stop medication or not breastfeed without checking the full facts. Table 1.1 sets out organizations that offer advice on medicines during pregnancy and when breastfeeding.

FAMILY HISTORY

Family history is important if it can have:

- an impact on the health of the parent in pregnancy or afterwards
- implications for the fetus or baby

A family history of certain conditions is particularly significant, namely a maternal history of a first-degree relative (sibling or parent) with:

- diabetes (increased risk of gestational diabetes)
- thromboembolic disease (increased risk of thrombophilia, thrombosis)
- pre-eclampsia (increased risk of pre-eclampsia)
- serious mental health illness (increased risk of puerperal psychosis)

For both parents, it is important to know about any family history of babies with congenital abnormality and any potential genetic problems, such as haemoglobinopathies.

Finally, any known allergies should be recorded. If someone gives a history of allergy, it is important

to ask about how this was diagnosed and what sort of problems it causes.

OBSTETRIC EXAMINATION

In any clinical setting, attention to infection control is paramount. Arms should be bare from the elbow down and hands should always be washed or gel should be used before and after any patient contact. Before moving on to examine the patient, it is important to be aware of the clinical context. The examination should be directed at the presenting problem, if any, and the gestation. For instance, it is generally unnecessary to spend time defining the presentation at 24 weeks' gestation unless the presenting problem is threatened preterm labour.

MATERNAL WEIGHT AND HEIGHT

The measurement of weight and height at the initial examination is important, to identify people who are significantly underweight or overweight. Those with a body mass index (BMI: weight [kg]/height [m^2]) of <20 are at higher risk of fetal growth restriction and increased perinatal mortality. In the obese (BMI >30), the risks of gestational diabetes, venous thromboembolism and pre-eclampsia are increased. Additionally, fetal assessment, by both palpation and ultrasound, is more difficult. Obesity is also associated with increased birthweight and a higher perinatal mortality rate. Those with morbid obesity require referral to specialized clinics, which include antenatal anaesthetic assessments to plan the possible use of regional anaesthesia.

In those of normal weight at booking and in whom nutrition is of no concern, there is no need to repeat weight measurement in pregnancy.

BLOOD PRESSURE MEASUREMENT

Blood pressure measurement is an important aspect of antenatal care. The first recording of blood pressure should be made as early as possible in pregnancy and thereafter it should be performed at every visit.

Hypertension diagnosed for the first time in early pregnancy (blood pressure >140/90 mmHg on two separate occasions at least 4 hours apart) should prompt a search for underlying causes (e.g. renal or endocrine). Although 90% of cases will be due to chronic hypertension, this is a diagnosis of exclusion and can be confidently made only when other secondary causes have been excluded (see **Chapter 9**).

BOX 1.2: How to measure blood pressure in pregnancy

- Measure the blood pressure in a seated or semi-recumbent position.
- Use an appropriately sized cuff. Using one too small will overestimate blood pressure.
- If using an automated device, check it has been validated for use in pregnancy.
- Ensure that manual devices have been recently calibrated.
- Convention is to use Korotkoff V (i.e. disappearance of sounds), as this is more reproducible than Korotkoff IV.
- Deflate the cuff slowly so that you can record the blood pressure to the nearest 2 mmHg.
- Do not round up or down.

URINARY EXAMINATION

Early in pregnancy, all patients should be offered routine screening for asymptomatic bacteriuria by midstream urine culture. Identification and treatment of asymptomatic bacteriuria reduces the risk of pyelonephritis. The risk of ascending urinary tract infection in pregnancy is much higher than in the non-pregnant state. Acute pyelonephritis increases the risk of pregnancy loss/premature labour and is associated with considerable maternal morbidity.

At repeat visits, urinalysis using automated reagent strip readers should be performed. If there is proteinuria after 20 weeks, a thorough evaluation with regard to a diagnosis of pre-eclampsia should be undertaken.

GENERAL MEDICAL EXAMINATION

In those who are fit and healthy presenting for a routine visit, there is little benefit in a full formal physical examination. However, if a patient presents with a problem or is in certain at-risk groups, there may be a need to undertake a much more thorough physical examination.

CARDIOVASCULAR EXAMINATION

Routine auscultation for maternal heart sounds in those who are asymptomatic with no cardiac history is unnecessary. However, if someone has previously lived in an area where rheumatic heart disease is prevalent and/or has a known history of heart murmur or heart disease, a cardiovascular examination during pregnancy is indicated.

BREAST EXAMINATION

Formal breast examination is not necessary. Everyone should, however, be encouraged to perform self-examination at regular intervals.

EXAMINATION OF THE PREGNANT ABDOMEN

Always have a chaperone with you to perform this examination and, before starting, ask about pain and areas of tenderness.

In pregnancy, the abdomen should be examined in a semi-recumbent position to avoid aortocaval compression. The abdomen should be exposed from just below the breasts to the symphysis fundus.

Inspection

- Assess the shape of the uterus and note any asymmetry.
- Look for fetal movements.
- Note any signs of pregnancy such as striae gravidarum (stretch marks) or linea nigra (the faint brown line running from the umbilicus to the symphysis pubis).
- Look for scars. The common areas to find scars are:
  - suprapubic (caesarean section, laparotomy for ectopic pregnancy or ovarian masses)
  - sub-umbilical (laparoscopy)
  - right iliac fossa (appendicectomy)
  - right upper quadrant (cholecystectomy)

Palpation

The purpose of palpating the pregnant abdomen is to assess:

- the number of babies
- the size of the baby
- the lie of the baby
- the presentation of the baby
- whether the baby presenting part is engaged

Symphysis–fundal height measurement

Symphysis–fundal height (SFH) should be measured and recorded at each antenatal appointment from 24 weeks' gestation. Most UK hospitals now use customized SFH charts, which are generated at the first antenatal visit and are customized to each individual, taking into account the height, weight, ethnicity and parity (**Figure 1.4**). Using two standard deviations of the mean, it is possible to define the 10th and 90th centile values and these are normally marked on the chart.

Feel carefully for the top of the fundus and for the upper border of the symphysis pubis. The recommended method is using a tape measure with the centimetre marks face down, to place the tape measure at the top of the fundus and measure to the symphysis pubis (i.e. from the variable point to the fixed point). Turn the tape measure over and read the measurement. The fundal height approximates with the gestation so that, at 36 weeks, the fundal height should be approximately 36 cm ± 3 cm. However, customized growth charts are more sensitive and specific and serial measurements are of greater value in detecting growth trends than one-off measurements. It is therefore recommended that the measurement is plotted on a customized growth chart.

A large SFH raises the possibility of:

- a multiple pregnancy
- macrosomia
- polyhydramnios

A small SFH raises the possibility of:

- fetal growth restriction
- oligohydramnios

Fetal lie, presentation and engagement

After measuring the SFH, next palpate to count the number of fetal poles (**Figure 1.5**). A pole is a head or a bottom. If you can feel one or two, it is likely to be a singleton pregnancy. If you can feel three or four, a twin pregnancy is likely. Sometimes, large fibroids can mimic a fetal pole; remember this if there is a history of fibroids.